

What is claimed is:

1. A method for reducing phosphorous in a body of water, comprising the acts of:
  - calcining a plurality of rocks and collecting carbon dioxide formed as a result of said calcining process;
  - crushing said plurality of calcined rocks;
  - 5 pumping source water from said body of water into to a plurality of retaining cells;
  - flocculating said phosphorus by introducing said plurality of calcined rocks into said source water in said retaining cells;
  - settling out a phosphorous precipitate formed by said flocculating act;
  - 10 adjusting the pH level of said flocculated source water to a predetermined range of values by pumping said carbon dioxide created by said calcining of said rocks into said source water to created treated water; and
  - transferring said treated water back to said body of water.
2. The method according to claim 1, wherein said calcining act comprises the act of heating excavated rock containing calcium carbonate and having about 22% calcium by weight for about three hours at about 1,850°F to convert said calcium carbonate to calcium oxide.
3. The method according to claim 1, wherein said calcining act is performed in a natural gas kiln.
4. The method of claim 1, further comprising the act of mixing said crushed calcined rock with said source water to create a slurry comprising about 10% to about 20% of said crushed calcined rock.

2020-01-03 10:44:39

5. The method according to claim 1, wherein said pumping act comprises pumping said source water to a plurality of flocculation cells.
6. The method of claim 1, further comprising the act of transferring said source water from said retaining cell to a settling cell after said flocculating act.
7. The method of claim 6, wherein said settling cell is about one hundred acres in surface area.
8. The method according to claim 1, further comprising the act of transferring said flocculated source water to a polishing cell after said settling step.
9. The method according to claim 8, wherein said polishing cell is about eighty acres in surface area.
10. The method of claim 1, wherein said settling act reduces phosphorous in said source water from concentrations of about 100 µg/L and higher to a range of about 10 µg/L to about 15µg/L.
11. The method of claim 1, wherein said adjusting act adjusts the pH level of said source water to a range between about 6.5 to about 8.0 to create said treated water.
12. A method for removing phosphorous from water, comprising the acts of:

heating a plurality of excavated rocks containing calcium carbonate and having about 22% by weight calcium in a natural gas kiln for about three hours at about 1,850°F to create a plurality of calcined rocks;

crushing said plurality of calcined rocks to create crushed calcined rock;

mixing said crushed calcined rock with water to create a slurry comprising about 10% to about 20% of said crushed calcined rock;

pumping source water containing a concentration of phosphorous ranging from about 100 µg/L and higher from a body of water to a plurality of flocculation cells;

flocculating said slurry with said source water in said flocculation cells;

transferring said source water and said slurry to a settling cell;

settling out a phosphorous precipitate formed by said flocculating act so that said phosphorous concentration is between a range of about 10 µg/L and about 15µg/L;

transferring said flocculated source water to a polishing cell;

adjusting the pH level of said flocculated source water to a range between about 6.5 to about 8.0 by pumping carbon dioxide created by said heating act into said source water to create treated water; and

transferring said treated water back to said body of water.